PadhAI: Deep Neural Networks

One Fourth Labs

Summary

What are the new things that we learned in this module?

1. Here are some of the takeaways from this chapter
   a. Data: Real inputs $x_i \in \mathbb{R}$
   b. Task:
      i. Binary classification
      ii. Multi-class classification
      iii. Regression
   c. Model: Deep Neural Network to deal with complex decision boundaries
   d. Loss:
      i. Cross entropy loss: $L(\Theta) = -\frac{1}{N}\Sigma^{N}_{i=1}\Sigma^{d}_{i=1} y_{ij} \log(\hat{y}_{ij})$
      ii. Square Error Loss: $L(\Theta) = -\frac{1}{N}\Sigma^{N}_{i=1}\Sigma^{d}_{i=1} (y_{ij} - \hat{y}_{ij})^2$
   e. Learning: Gradient Descent with backpropagation
   f. Evaluation:
      i. Accuracy = $\frac{Number\ of\ correct\ predictions}{Total\ Number\ of\ predictions}$
      ii. Per-class Accuracy = $\frac{Number\ of\ correct\ predictions\ of\ a\ class}{Total\ Number\ of\ true\ values\ of\ that\ class}$
2. Note: the text highlighted in red indicates concepts that will be covered in the upcoming chapters.